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Permit# 397-775 Date 6/14/77

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AR100001

Standard Chlorine of
Governor Lea Road
P.O. Box 319
Delaware City, DE 19706

DE-53

Confidential spill or WQ data in WS files

Preliminary Assessment,

Site Inspection & Sampling

of

STANDARD CHLORINE OF DELAWARE, INC.

Delaware City, Delaware

Standard Chlorine of Delaware, Inc.

Table of Contents

SECTION I

EPA POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION AND PRELIMINARY ASSESSMENT

REGION: III | SITE NUMBER (to be assigned by Hq):

NOTE: This form is completed for each potential hazardous waste site to help set priorities for site inspection. The information submitted on this form is based on available records and may be updated on subsequent forms as a result of additional inquiries and on-site inspections.

GENERAL INSTRUCTIONS: Complete Sections I and III through X as completely as possible before Section II (*Preliminary Assessment*). File this form in the Regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (*EN-335*); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME: Standard Chlorine of Delaware, Inc.

B. STREET (or other identifier): Governor Lea Road, P. O. Box 319

C. CITY: Delaware City

D. STATE: DE

E. ZIP CODE: 19706

F. COUNTY NAME: New Castle

G. OWNER/OPERATOR (if known)

1. NAME: Standard Chlorine of Delaware, Inc.
2. TELEPHONE NUMBER: (302) 834-4536

H. TYPE OF OWNERSHIP

[ ] 1. FEDERAL [ ] 2. STATE [ ] 3. COUNTY [ ] 4. MUNICIPAL [X] 5. PRIVATE [ ] 6. UNKNOWN

I. SITE DESCRIPTION

On September 16, 1981, approximately 5,000 gallons of 99.9% pure monochlorobenzene was spilled from a train tank car.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.)

Notified state of spill when it occurred, also Superfund notification.

K. DATE IDENTIFIED (mo., day, & yr.): 9/16/81

L. PRINCIPAL STATE CONTACT

1. NAME: Lisa A. Hamilton/Jay N. Motwani
2. TELEPHONE NUMBER: (302) 736-4781

II. PRELIMINARY ASSESSMENT (complete this section last)

A. APPARENT SERIOUSNESS OF PROBLEM

[ ] 1. HIGH [ ] 2. MEDIUM [ ] 3. LOW [ ] 4. NONE [ ] 5. UNKNOWN

[X] MEDIUM HIGH

B. RECOMMENDATION

[ ] 1. NO ACTION NEEDED (*no hazard*)

[ ] 2. IMMEDIATE SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR:
b. WILL BE PERFORMED BY:

[X] 3. SITE INSPECTION NEEDED
a. TENTATIVELY SCHEDULED FOR: 1/6/82
b. WILL BE PERFORMED BY: State

[ ] 4. SITE INSPECTION NEEDED (*low priority*)

C. PREPARER INFORMATION

1. NAME: Lisa A. Hamilton
2. TELEPHONE NUMBER: (302) 736-5740
3. DATE (mo., day, & yr.): 9/9/82

III. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)

[ ] 2. INACTIVE (Those sites which no longer receive wastes.)

[X] 3. OTHER (specify): Not a regular waste Disposal site although spills have occurred in the past.
(*Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.*)

B. IS GENERATOR ON SITE?

[ ] 1. NO [X] 2. YES (specify generator's four-digit SIC Code): 2865

C. AREA OF SITE (in acres): 17.5 (plant property)

D. IF APPARENT SERIOUSNESS OF SITE IS HIGH, SPECIFY COORDINATES

1. LATITUDE (deg.-min.-sec.): 39° 36'
2. LONGITUDE (deg.-min.-sec.): 75 30'

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E. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES (specify): Plant office and manufacturing

Continued From Front

IV. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS. TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY	X	8. OTHER (specify): spill
					9. OTHER (specify):		

E. SPECIFY DETAILS OF SITE ACTIVITIES AS NEEDED

V. WASTE RELATED INFORMATION

A. WASTE TYPE

[ ] 1. UNKNOWN [X] 2. LIQUID [ ] 3. SOLID [ ] 4. SLUDGE [ ] 5. GAS

B. WASTE CHARACTERISTICS

[ ] 1. UNKNOWN [ ] 2. CORROSIVE [ ] 3. IGNITABLE [ ] 4. RADIOACTIVE [X] 5. HIGHLY VOLATILE
[X] 6. TOXIC [ ] 7. REACTIVE [ ] 8. INERT [ ] 9. FLAMMABLE

[ ] 10. OTHER (specify):

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

No. Calculated 5,000 gallon spill

2. Estimate the amount (specify unit of measure) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT 5,000	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE gallon	UNIT OF MEASURE	UNIT OF MEASURE
(1) PAINT, INKS, RESINS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY PHARMACEUT.
(2) METAL SLUDGES	(2) OTHER (specify)	(2) NON-HALOGENATED SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify)	(3) CAUSTICS	(3) MILLING/ MINE TAILINGS	(3) RADIOACTIVE
(4) METAL FINISHING SLUDGE			(4) PESTICIDES	(4) FERROUS SMLTG. WASTES	(4) MUNICIPAL
(5) OTHER (specify):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify):
			(6) CYANIDE	(6) OTHER (specify):	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			X (11) OTHER (specify) chlorinated benzene		

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Continued From Page 2

V. WASTE RELATED INFORMATION (continued)

3. LIST SUBSTANCES OF GREATEST CONCERN WHICH MAY BE ON THE SITE

Benzene
Monochlorobenzene
Orthodichlorobenzene
Paradichlorobenzene
1,2,4 - Trichlorobenzene

4. ADDITIONAL COMMENTS OR NARRATIVE DESCRIPTION OF SITUATION KNOWN OR REPORTED TO EXIST AT THE SITE.

VI. HAZARD DESCRIPTION

A. TYPE OF HAZARD	B. POTENTIAL HAZARD (mark 'X')	C. ALLEGED INCIDENT (mark 'X')	D. DATE OF INCIDENT (mo.,day,yr.)	E. REMARKS
1. NO HAZARD				
2. HUMAN HEALTH	X			
3. NON-WORKER INJURY/EXPOSURE				
4. WORKER INJURY				
5. CONTAMINATION OF WATER SUPPLY	X			Diamond Shamrock wells and Potomac wells in area
6. CONTAMINATION OF FOOD CHAIN				
7. CONTAMINATION OF GROUND WATER		X	9/16/81	Study initiated after spill indicates ground water contamination has occurred.
8. CONTAMINATION OF SURFACE WATER		X	9/16/81	Samples from Red Lion Creek indicate contamination has occurred.
9. DAMAGE TO FLORA/FAUNA				
10. FISH KILL				
11. CONTAMINATION OF AIR				
12. NOTICEABLE ODORS		X	9/16/81	Inspection after spill.
13. CONTAMINATION OF SOIL		X	9/16/81	
14. PROPERTY DAMAGE				
15. FIRE OR EXPLOSION				
16. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUIDS		X	9/16/81	
17. SEWER, STORM DRAIN PROBLEMS				
18. EROSION PROBLEMS				
19. INADEQUATE SECURITY				
20. INCOMPATIBLE WASTES				
21. MIDNIGHT DUMPING				
22. OTHER (specify)				

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VII. PERMIT INFORMATION

A. INDICATE ALL APPLICABLE PERMITS HELD BY THE SITE.

[X] 1. NPDES PERMIT [ ] 2. SPCC PLAN [ ] 3. STATE PERMIT (specify):
[X] 4. AIR PERMITS [ ] 5. LOCAL PERMIT [ ] 6. RCRA TRANSPORTER
[ ] 7. RCRA STORER [ ] 8. RCRA TREATER [ ] 9. RCRA DISPOSER

[X] 10. OTHER (specify): RCRA generator

B. IN COMPLIANCE?

[X] 1. YES [ ] 2. NO [ ] 3. UNKNOWN

4. WITH RESPECT TO (list regulation name & number):

VIII. PAST REGULATORY ACTIONS

[ ] A. NONE [X] B. YES (summarize below)

NPDES discharge out of compliance, settled out of court; now working to improve under a consent agreement.

IX. INSPECTION ACTIVITY (past or on-going)

[ ] A. NONE [X] B. YES (complete items 1,2,3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Split sampling of monitor wells	1/6/82	State	Split 7 samples.

X. REMEDIAL ACTIVITY (past or on-going)

[ ] A. NONE [X] B. YES (complete items 1, 2, 3, & 4 below)

1. TYPE OF ACTIVITY	2. DATE OF PAST ACTION (mo., day, & yr.)	3. PERFORMED BY: (EPA/State)	4. DESCRIPTION
Hydrogeologic study	continuing	company	One report complete; further study being conducted.
Recovery by pumping well	continuing	company	

NOTE: Based on the information in Sections III through X, fill out the Preliminary Assessment (Section II) information on the first page of this form.

SECTION II

EPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

REGION: III | SITE NUMBER (to be assigned by Hq):

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (*Section II*). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force (*EN-335*); 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
Standard Chlorine of Delaware, Inc.	Governor Lea Road, P. O. Box 319		
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
Delaware City	DE	19706	New Castle

G. SITE OPERATOR INFORMATION

1. NAME	2. TELEPHONE NUMBER
Standard Chlorine of Delaware, Inc.	(302) 834-4536

3. STREET	4. CITY	5. STATE	6. ZIP CODE

H. REALTY OWNER INFORMATION (*if different from operator of site*)

1. NAME	2. TELEPHONE NUMBER

3. CITY	4. STATE	5. ZIP CODE

I. SITE DESCRIPTION On Sepbember 16, 1981, approximately 5,000 gallons of 99.9% pure monochlorobenzene spilled from a train tank car.

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (*complete this section last*)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (*mo., day, & yr.*)	B. APPARENT SERIOUSNESS OF PROBLEM
	☐ 1. HIGH ☐ 2. MEDIUM ☐ 3. LOW ☐ 4. NONE ☒ MEDIUM HIGH

PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (*mo., day, & yr.*)
Lisa A. Hamilton	(302) 736-5740	9/9/82

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE
Lisa A. Hamilton	Geohydrologist

3. ORGANIZATION	4. TELEPHONE NO. (*area code & no.*)
Delaware Department of Natural Resources & Environmental Control	(302) 736-5740

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Lisa A. Hamilton	DNREC	(302) 736-5740
Linda J. Norton	DNREC	(302) 736-4781
Fred Bopp III	Roy F. Weston, Inc.	(215) 692-3030

C. SITE REPRESENTATIVES INTERVIEWED (*corporate officials, workers, residents*)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
John Laager	Corporate Counsel (302) 834-4536	P. O. Box 319 Delaware City, DE 19706
Tom Pierson	Production Supervisor (302) 834-4536	P. O. Box 319 Delaware City, DE
A. R. Sinibaldi	Vice President, Operations (302) 834-4536	P. O. Box 319 Delaware City, DE

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Continue On Reverse

Continued From Front

INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
Standard Chlorine of Delaware, Inc.	(302) 834-4536	P. O. Box 319, Delaware City, DE 19706	Monochlorobenzene from spill

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
9/16/81 & 1/6/82	10 a.m.- 1 p.m.	[X] 1. PERMISSION [ ] 2. WARRANT

J. WEATHER (describe)

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER	X	State lab	2/5/82
b. SURFACE WATER	X	State lab (taken before inspection)	Received
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify)			

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3
NONE		

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Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS: [X] a. GROUND [ ] b. AERIAL

2. PHOTOS IN CUSTODY OF: DNREC, Solid Waste Management Branch

SITE MAPPED?

[X] YES. SPECIFY LOCATION OF MAPS: DNREC files

E. COORDINATES

1. LATITUDE (deg.-min.-sec.): 39° 36'

2. LONGITUDE (deg.-min.-sec.): 75° 38'

V. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE (Those inductrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)

[ ] 2. INACTIVE (Those sites which no longer receive wastes.)

[X] 3. OTHER(specify): Not a regular disposal. (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.) site although spills have occurred.

B. IS GENERATOR ON SITE?

[ ] 1. NO [X] 2. YES(specify generator's four-digit SIC Code): 2865

C. AREA OF SITE (in acres): 17.5 (plant property)

D. ARE THERE BUILDINGS ON THE SITE?

[ ] 1. NO [X] 2. YES(specify): Plant office and manufacturing

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

'X'	A. TRANSPORTER	X'	B. STORER	X'	C. TREATER	X'	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION		1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER(specify):		6. OTHER(specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY	X	8. OTHER(specify): spill
					9. OTHER(specify):		

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

[ ] 1. STORAGE [ ] 2. INCINERATION [ ] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL

[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [ ] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[X] 1. LIQUID [ ] 2. SOLID [ ] 3. SLUDGE [ ] 4. GAS

B. WASTE CHARACTERISTICS

[ ] 1. CORROSIVE [ ] 2. IGNITABLE [ ] 3. RADIOACTIVE [X] 4. HIGHLY VOLATILE

[X] 5. TOXIC [ ] 6. REACTIVE [ ] 7. INERT [ ] 8. FLAMMABLE

OTHER(specify):

C. WASTE CATEGORIES

Are records of wastes available? Specify items such as manifests, inventories, etc. below.

No. Calculated 5,000 gallon spill

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Continue On Reverse

Continued From Front

VII. WASTE RELATED INFORMATION *(continued)*

2. Estimate the amount *(specify unit of measure)* of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT: 5,000	AMOUNT	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE: gallon	UNIT OF MEASURE	UNIT OF MEASURE
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER *(specify)*:	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER *(specify)*:	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER *(specify)*:			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER *(specify)*:
			(6) CYANIDE	(6) OTHER *(specify)*:	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			X (11) OTHER *(specify)*: chlorinated benzenes		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE *(place in descending order of hazard)*

1. SUBSTANCE	2. FORM *(mark 'X')*			3. TOXICITY *(mark 'X')*				4. CAS NUMBER	5. AMOUNT	6. UNIT
	a. SOLID	b. LIQ.	c. VAPOR	a. HIGH	b. MED.	c. LOW	d. NONE			
Benzene		X		X						
Monochlorobenzene		X								
Orthodichlorobenzene		X								
Paradichlorobenzene		X								
1, 2, 4 - Trichlorobenzene		X								

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

X A. HUMAN HEALTH HAZARDS

Possible due to exposure to monochlorobenzene on ground

AR100014

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VIII. HAZARD DESCRIPTION (continued)

☐ B. NON-WORKER INJURY/EXPOSURE

☐ C. WORKER INJURY/EXPOSURE

☒ D. CONTAMINATION OF WATER SUPPLY

Possible contamination of Diamond Shamrock production wells.

☐ E. CONTAMINATION OF FOOD CHAIN

☒ F. CONTAMINATION OF GROUND WATER

Documented through sample results from monitor wells.

☒ G. CONTAMINATION OF SURFACE WATER

Documented through sample results from Red Lion Creek.

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Continued From Front

III. HAZARD DESCRIPTION (continued)

☐ H. DAMAGE TO FLORA/FAUNA

☐ I. FISH KILL

☐ J. CONTAMINATION OF AIR

☒ K. NOTICEABLE ODORS

Sweet smell noticeable during inspections.

☒ L. CONTAMINATION OF SOIL

Due to spill.

☐ M. PROPERTY DAMAGE

AR100016

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VIII. HAZARD DESCRIPTION *(continued)*

☐ T. MIDNIGHT DUMPING

☐ U. OTHER *(specify)*:

IX. POPULATION DIRECTLY AFFECTED BY SITE

A. LOCATION OF POPULATION	B. APPROX. NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE *(specify units)*
1. IN RESIDENTIAL AREAS	20	20	6	1 mile radius
2. IN COMMERCIAL OR INDUSTRIAL AREAS	1,000	1,000	4 industries	1 mile radius
3. IN PUBLICLY TRAVELLED AREAS	1,500	1,500		1 mile radius
4. PUBLIC USE AREAS *(parks, schools, etc.)*	0	0	0	1 mile radius

X. WATER AND HYDROLOGICAL DATA

A. DEPTH TO GROUNDWATER *(specify unit)*	B. DIRECTION OF FLOW	C. GROUNDWATER USE IN VICINITY
36-44 feet (Columbia)	N, NE and E (Columbia)	Process water (Columbia)
D. POTENTIAL YIELD OF AQUIFER	**E. DISTANCE TO DRINKING WATER SUPPLY** *(specify unit of measure)*	**F. DIRECTION TO DRINKING WATER SUPPLY**
	3,000 feet. (Potomac aquifer)	South

G. TYPE OF DRINKING WATER SUPPLY

☐ 1. NON-COMMUNITY < 15 CONNECTIONS* ☒ 2. COMMUNITY *(specify town)*: Artesian Water Co. (Pot

☐ 3. SURFACE WATER ☒ 4. WELL Getty (Surface water and Potamac aquifer)

AR100017

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Diamond Shamrock (Columbia aquifer)

Continued From Page 6

VIII. HAZARD DESCRIPTION (continued)

☐ N. FIRE OR EXPLOSION

☒ O. SPILLS/LEAKING CONTAINERS/RUNOFF/STANDING LIQUID

Approximately 5,000 gallon spill of monochlorobenzene.

☐ P. SEWER, STORM DRAIN PROBLEMS

☐ Q. EROSION PROBLEMS

☐ R. INADEQUATE SECURITY

☐ S. INCOMPATIBLE WASTES

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

A. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')
Getty Wells	260-680 ft. potomac	Various locations		X

I. RECEIVING WATER

1. NAME: Red Lion Creek

☐ 2. SEWERS ☒ 3. STREAMS/RIVERS ☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

Recreation and industrial, water supply.

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☐ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
X	1. SAND				
X	2. CLAY				
X	3. GRAVEL				

XIII. SOIL PERMEABILITY

☐ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☒ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☒ 1. YES ☐ 2. NO 3. COMMENTS: Ground water probably discharges to Red Lion Creek.

I. SLOPE

1. ESTIMATE % OF SLOPE

2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

J. OTHER GEOLOGICAL DATA

AR100019

Continue On Reverse

Continued From Front

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE *(e.g., RCRA, State, NPDES, etc.)*	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED *(mo., day, & yr.)*	E. EXPIRATION DATE *(mo., day, & yr.)*	F. IN COMPLIANCE *(mark 'X')*		
					1. YES	2. NO	3. UNKNOWN
NPDES	DNREC	DE0020001	Not renewed at this time.		X		
Air	DNREC	APC-78/880-0P			X		
Air	DNREC	APC-79/858-0P			X		

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☒ YES *(summarize in this space)*

NPDES discharge out of compliance, settled out of court; now working to improve under a consent agreement.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition *(Section II)* information on the first page of this form.

SECTION III

Standard Chlorine of Delaware, Inc.

Facility Background

The Standard Chlorine of Delaware plant is located on Gov. Lea Road in the Delaware City, Delaware industrial area. The manufacturing process involves the chlorination and distillation of benzene and nitrobenzene to produce monochlorobenzene, paradichlorobenzene, orthodichlorobenzene, 1,2,4-trichlorobenzene, 1,2,4,5-tetrachlorobenzene, metachloronitrobenzene, and hydrochloric acid.

On September 16, 1982, a spill of approximately 5000 gallons of 99.9% pure monochlorobenzene (MCB) occurred from a train tank car. The spill runoff traveled along drainage ways leading to Red Lion Creek. Some monochlorobenzene discharged into Red Lion Creek and stream samples indicate that most of the MCB is tied up in the bottom samples. Construction of dams and setting out booms by Standard Chlorine helped keep a lot of the MCB out of Red Lion Creek.

The DNREC required soil borings at the spill site and along the spill route because of the possibility that the MCB soaked into the ground and contaminated the groundwater. The analytical data from the soil borings indicated that groundwater contamination was probable. Standard Chlorine hired a consultant and initiated a hydrogeologic and remedial action study at DNREC's request.

The study concluded that ground water contamination by MCB had occurred. In addition, samples taken by DNREC indicated contamination by benzene, paradichlorobenzene, orthodichlorobenzene, and 1,2,4-trichlorobenzene implying past spills. The study determined that pumping a recovery well would clean-up the contamination. The DNREC has required that further study be initiated to determine the extent (both vertical and horizontal) of contamination and a more thorough remedial action. At this time, one recovery well is operating and further study is proceeding.

SECTION IV

HAZARDOUS WASTE COMPLIANCE INSPECTION REPORT

FACILITY INFORMATION	- Standard Chlorine of Delaware, Inc. Governor Lea Road Delaware City, DE 19706 (302) 834-4536
RESPONSIBLE OFFICIAL	- Mr. John Laager
SURVEY PARTICIPANTS	- Mr. George J. Bender, Solid Waste Branch (DNREC) Mr. John Laager, Standard Chlorine Mr. Ivo A. Ceccarelli Mr. Tom Pierson
DATE OF INSPECTION	- January 27, 1982
APPLICABLE REGULATIONS	- State of Delaware Regulations Governing Hazardous Waste (November 19, 1980).
PURPOSE OF SURVEY	- Compliance with State of Delaware Regulations Governing Hazardous Waste.
FACILITY DESCRIPTION	- Generator of Hazardous Waste

BACKGROUND -

The two sources of hazardous waste generated at this site result from the production equipment and quality control analysis and safety clothing used for the production of chlorinated benzenes. The waste consists of test tubes, glass bottles, rubber gloves and boots. All contaminated materials are disposed of in 55 gallon drums. The drums are placed in a drum storage area located on the north end of the plant.

The second source of waste generated at this site is from the maintenance and cleaning of production equipment. Filters used in the production process are periodically removed from the equipment and placed in 55 gallon drums. Every three to five years the production columns are shut down for cleaning. The deposits removed from the wall of these columns are placed in 55 gallon drums. All 55-gallon drums containing waste are stored in the drum storage area.

When an ample supply of drums are accumulated, Cecos International of New Jersey removes the drums. Cecos International removes approximately 1,200 kilograms a year of hazardous waste from this site per year.

General Standards for Generators 262.10 - 262.51

The generator has made the proper determination of its hazardous waste. The generator has obtained an EPA identification number DED041212473. The generator

adequately met the requirements for these sections of the regulations except:

262.34(a)(5) and 265.52(d)

A detailed description of arrangements formally agreed to by local police, fire departments and state and local emergency teams to provide assistance during emergency situations.

The generator has contacted the emergency agencies above, but does not have on record a written response from each.

DOCUMENTATION OF VIOLATION

No violations documented.

HAZARDOUS WASTE CHECKLIST FOR INSPECTION OF GENERATORS

Name of Facility: Standard Chlorine

Address: Governor Lea Road
Delaware City, DE 19706

EPA Generator ID Number: DED 041212473

Facility Inspection Representative: Ivo A. Ceccarelli

Title: Environmental Coor.

Telephone Number: 302-834-4536

Inspection File
Name/No:

Reviewer

Date reviewed:

Form "A"

Pert. Regs.	
State of Delaware Regulations Governing Hazardous Wastes	1. Please provide a brief narrative explaining the type of work activity that occurs at the generator. Chlorination of Benzene

2. Does the generator dispose of its wastes ......

A. On-site (Circle one or both)
(B.) Off-site

Note: if on-site, then checklist for both a generator and TSD facility must be completed if on-site more than 90 days.

3. What is the amount of hazardous waste (in kilograms) produced by the generator facility in a month? 1000 in a year? 12000
(If the amount is less than 1,000 kg/month, then the facility qualifies as a small generator and Form C should be completed instead of Form A.)

4. What categories of hazardous wastes result from the generator's facility? Please circle:

A. Ignitable wastes	YES (NO)
B. Reactive wastes	YES (NO)
C. Corrosive wastes	YES (NO)
D. EP Toxic wastes	(No)
E. RCRA Listed Wastes	(YES) (NO)

AR100026

5. Is the generator presently . . .

A. Treating hazardous waste? Yes (No)

B. Storing hazardous waste? Yes (No)

C. Disposing hazardous waste? Yes (No)

Note: if the generator performs any of the activities noted in Question 5, then the inspector must complete Form B, entitled "RCRA Checklist for inspection of hazardous waste treatment, storage and disposal facilities."

262.20 6. Is a manifest system currently in operation at the generator's facility so that offsite shipment of hazardous wastes can be tracked? (Yes) No

7. Please inspect the generator's manifest for the following information:

A. Is the TSD facility which receives a generator's hazardous waste identified by name, address, and EPA ID number? (Yes) No

262.20(c) B. Is an alternative facility designated in case of an emergency? Yes (No)

C. Is a serialized manifest document number included on the form? (Yes) No

262.20(a)(2) D. Is the generator's name, address, telephone number and EPA ID number included on the form? (Yes) No

E. Is the name and identification number of each transporter included on the form? (Yes) No

262.20(a)(3) F. Is a description of the generator's hazardous waste to be treated, stored, or disposed included on the manifest? (Yes) No

G. Is the quantity of each waste by units of weight or volume and the type and number of containers loaded in the transport vehicle included on the manifest form? (Yes) No

H. Is the following certification noted on the generator's manifest form and is the certification acknowledged by the generator's signature?

"This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the available regulations of the DOT and EPA." (Yes) No

262.22 I. Are there adequate copies of the manifest available for generator, transporter, and TSD's?

8. Is hazardous waste being stored on-site by the generator for less than 90 days? (Yes) No

If so,

262.34(a)(3) A. Is the date accumulation of waste began clearly marked on each storage container? (Yes) No

262.34(a)(2) B. Are storage containers in good condition, i.e., no corrosion, leaking, or structural deformations? (Yes) No

262.34(a)(4) C. At the time of accumulation, are the storage containers clearly labeled as containing a particular haazardous waste in accordance with DOT regulations? (Yes) No

9. Does the generator have an established contingency plan to deal with emergencies that may impact hazardous waste currently in storage at the facility? (Yes) No

265.16(a) 10. Have facility personnel successfully completed a program of classroom training or on-the-job training in hazardous waste management procedures? (Yes) No

265.16(d) 11. Does the generator facility maintain a record of job titles for personnel that are involved with hazardous waste management and the name of the employee filling each job? (Yes) No

265.16(d)(2) 12. Does the generator facility have on record a written position description for each job title noted in Question #11? (Yes) No

265.16(d)(3) 13. Does the facility presently maintain a written desctiption of the type and amount of introductory and continuing training for those employees noted in Question #11? (Yes) No

265.32(a) 14. *Does the generator facility have installed the following equipment:

A. An internal communications or alarm system capable of providing immediate emergency instructions to facility personnel if the hazardous waste storage area is threatened by fire or explosion? (Yes) No

B. A device at the scene of hazardous waste generator operations capable of summoning emergency assistance from Police, Fire departments, etc.? (Yes) No

C. Fire control equipment and an adequate supply of fire fighting water or fire supression chemicals? (Yes) No

265.35 15. *Does the generator facility have adequate aisle space to allow the unobstructed movement of personnel and equipment during emergencies? (YES) NO

265.50 16. Does the facility have a contingency plan which cont. AR100028 following elements:

265.52(c) A. A detailed description of emergency procedures facility personnel will implement in response to fires, explosions, or unplanned releases of hazardous wastes to air, soil, and water? (Yes) No

265.52 (d) B. A detailed description of arrangements formally agreed to by local police, fire departments, and State and local emergency teams to provide assistance during emergency situations? Yes (No)

265.52(e) C. A listing of names, addresses, and phone numbers of the generator facility emergency response coordinators? (Yes) No

Note: This listing should include names and phone numbers of emergency coordinators available on twenty-four hour basis.

265.52(e) D. A list of appropriate emergency equipment necessary to cope with emergencies at the generator facility? (Yes) No

265.52(f) E. *An evacuation plan for the generator facility if Management believes such a plan is a definite requirement for their particular generator facility. (Yes) No

17. Please provide detailed comments on specific problems encountered during the inspection. For instance, industry requests for clarification of specific RCRA rules and regulations and their applicability at the facility can be noted below or described in a separate memo attached to the inspector's checklist.

Inspector's Name: George J. Bowden

Title: Resources Control Specialist II

Agency: DNREC

Office location: Room 203 Blue Hen Mall Dover De. 19901

Date of Inspection: January 27, 1988

Inspector's Name: _____

Title: _____

Agency: _____

Office location: _____

Date of Inspection: _____

Hazardous Waste Checklist for Use and Management of Containers

(Subpart I Section 265.1 - "General Operating Requirements"

Inspection File Name/No:

Reviewer:

Date Reviewed:

Form "I"

e of Facility: Standard Chlorine

ress: [illegible]

Generator ID Numbers: [illegible]

ility Inspection Representative: [illegible]

le: [illegible]

ephone Number: [illegible]

questions contained in this checklist apply to owners and operators of all hazardous was ilities that store containers of hazardous waste, except as Section 265.1 provides otherw

t. Regs.		
171	1. Are all containers in good condition, i.e., not showing signs of leakage or corrosion or any other deterioration/deformation?	Yes
71	2. Are containers lined or made of materials compatible with hazardous wastes placed into them so that the container will not react or corrode with the hazardous wastes?	Yes
73(a)	3. Are all containers holding hazardous waste kept closed during storage?	Yes
74	4. Are areas where hazardous waste containers are stored inspected by the owner/operator at least once a week?	Yes
5(d) 5(b)	5. Is an inspection log maintained? (See question #5 of TSD checklist.)	Yes
76	6. Are containers holding ignitable or reactive waste located at least 50 ft. from the facility's property line?	Yes N/A
77(a)	7. Are incompatible wastes placed in the same container? (See Appendix 5 for examples.)	Yes
77(c)	8. Are storage containers holding hazardous wastes which are incompatible with nearby materials stored in containers, tanks, piles, or surface impoundments separated by dikes, berms, walls, or other devices?	Yes N/A

Form "I"

spector's Name: George Boulton

tle: Emergency Control Specialist II

ency: DNREC

fice location: Room 203 Blue Hen Mall Dover De.

te of Inspection: 11/27/12

spector's Name: _____

tle: _____

ency: _____

fice location: _____

e of Inspection: _____

AR100031

SECTION V

STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

Kamrak/Lisa

RECEIVED
FEB 9 1982
WATER RESOURCES SECTION

ORGANIC ANALYTICAL REQUEST

DATE SAMPLED 6 Jan 82 SAMPLE BY LJU + Weston RESULTS TO Gus Hamilton

COMPLETION DATE 28 Jan 82 ANALYST S. Robinson APPROVED GH

ANALYTICAL REQUEST — SPECIFIC CMPDS.

VOA — Chlorobenzene, Toluene, Tetrachloroethylene, Benzene, Chloroform,

INSECTICIDE — Carbon tetrachloride, 1,2-Dichloroethane

HERBICIDE

FUNGICIDE

PCB

CORE

GENERAL ORG.

RECEIVED
FEB 8 1982
WATER RESOURCES SECTION

SAMPLE LOG NO.	SAMPLE LOCATION & DESCRIPTION	
143	Diamond Shamrock	PW-16
144	Std. Chlorine	TW-10
145	Std Chlorine	TW-6A
146	Std Chlorine	TW-6B
147	Std Chlorine	TW-6C
148	Std Chlorine	TW-6D
149	Std Chlorine	TW-10D
COMMENTS		
150	Std Chlorine	TW-8D

AR100033

Sample No	Benzene	Chloro-benzene	o-Dichloro-benzene	p-Dichloro-benzene	1,2,4-Trichloro-benzene
143	6.7	38	ND	ND	ND
144	ND	4300	ND	470	910
145	3400	17000	4900	19000	5000
14[illegible]	5200	22000	5900	26000	ND
147	ND	920	3000	12000	4300
148	ND	1900	2400	11000	3100
149	1200	6100	29000	9000	14000
150	1000	38000	14000	13000	8100

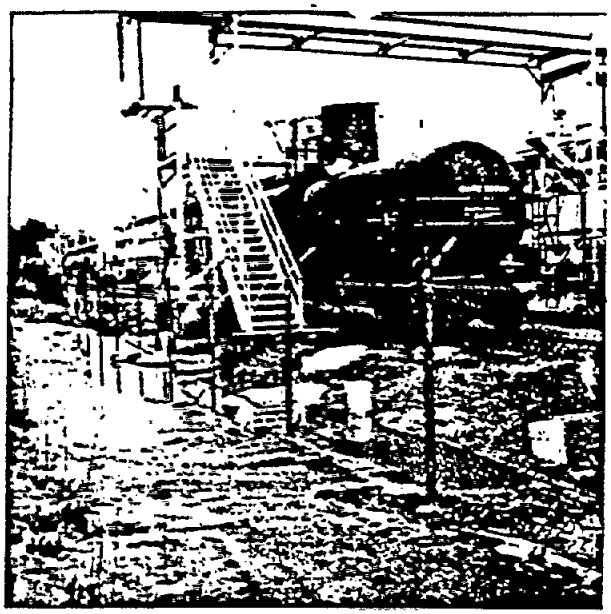
Compound, ug/L

ND = None detected

Excessive concentrations of benzene and chlorobenzene contaminated the purge and trap system. The Tekmar concentrator required numerous bake-outs after each analysis to clean the trap, transfer line and column. Over one working day was required to analyze each sample. The excessive benzene and chlorobenzene masked all other purgeable compounds requested. Therefore the SOC samples were composited, extracted and analyzed for benzene and derivatives, the routine procedure for Standard Chlorine samples. The SOCs requested cannot be analyzed by the method used. Results have been confirmed by GC/MS

spi 1/28/82

SECTION VI



1 STANDARD CHLORINE TANK CAR THAT OVERFLOWED

Site Name : STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. Motwani
Signature

Film:

Lens:

Camera:

Site Location: DE City, DE

Direction faced: N

Comment:

2. STANDARD CHLORINE SPILL MONOCHLORO BENZENE

Site Name : STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. Motwani
Signature

Film:

Lens:

Camera:

Site Location: DE City, DE

Direction faced: SE

Comment:

3 STANDARD CHLORINE MCB SPILL

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: E

Comment:

4 STANDARD CHLORINE RT. OF SPILL

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: N

Comment: SPILL

5 STANDARD CHLORINE RT. OF SPILL

Site Name : STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date:

Time: 9-18-81

Photographer: J.N. MOTWANI
Signature

Film:

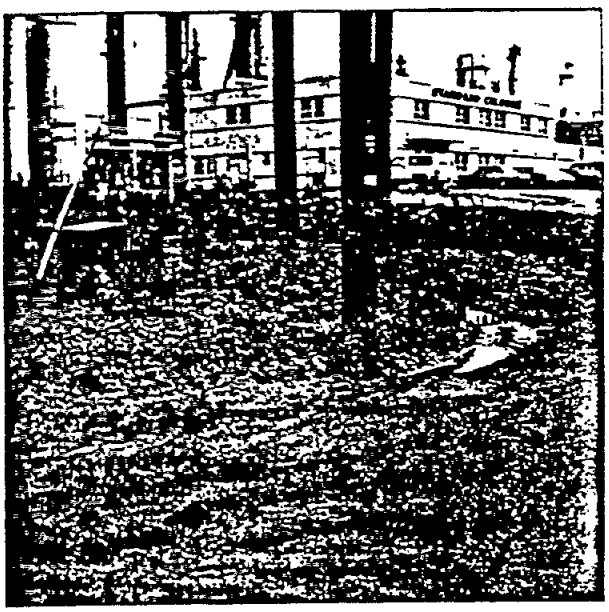
Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: N

Comment: SPILL FLOWED S



6 STANDARD CHLORINE RT. OF SPILL

Site Name : STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

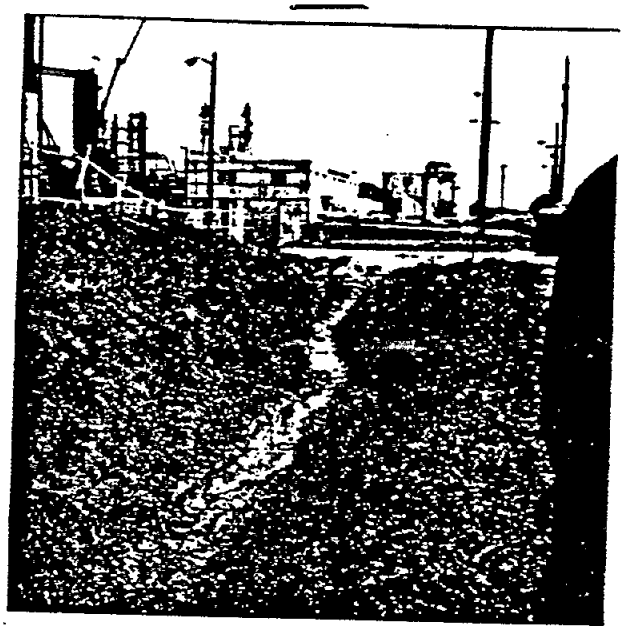
Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: NE

Comment: SPILL



7 STANDARD CHLORINE
RT. OF SPILL

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J. N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: E

Comment: SPILL FLOWED W

8 STANDARD CHLORINE
DAM ON RT. OF SPILL

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J. N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: E

Comment: SPIL

9 STANDARD CHLORINE
RT. OF ~~SPILL~~

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: W

Comment: FOLLOWING SPILL RT.

10 STANDARD CHLORINE
MCB 0/1 EDGE OF STREAM

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced:

Comment: MC PEPSI CAN AR100040

11. STANDARD CHLORINE CLEANING UP SPILL

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

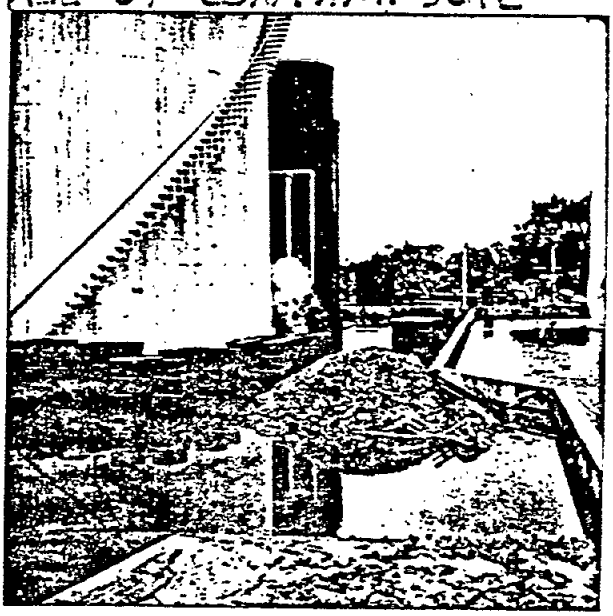
Camera:

Site Location: DE CITY, DE

Direction faced: S

Comment:

PILE OF ~~CONTAM.~~ SOIL



12. STANDARD CHLORINE CONTAINMENT AREA

Site Name: STD. CHLORINE MCB SPILL 9-16-81

ID No.:

Date: 9-18-81

Time:

Photographer: J.N. MOTWANI
Signature

Film:

Lens:

Camera:

Site Location: DE CITY, DE

Direction faced: W

Comment: ABOVE CONTAMINATED SOIL

AR100041

SECTION VII

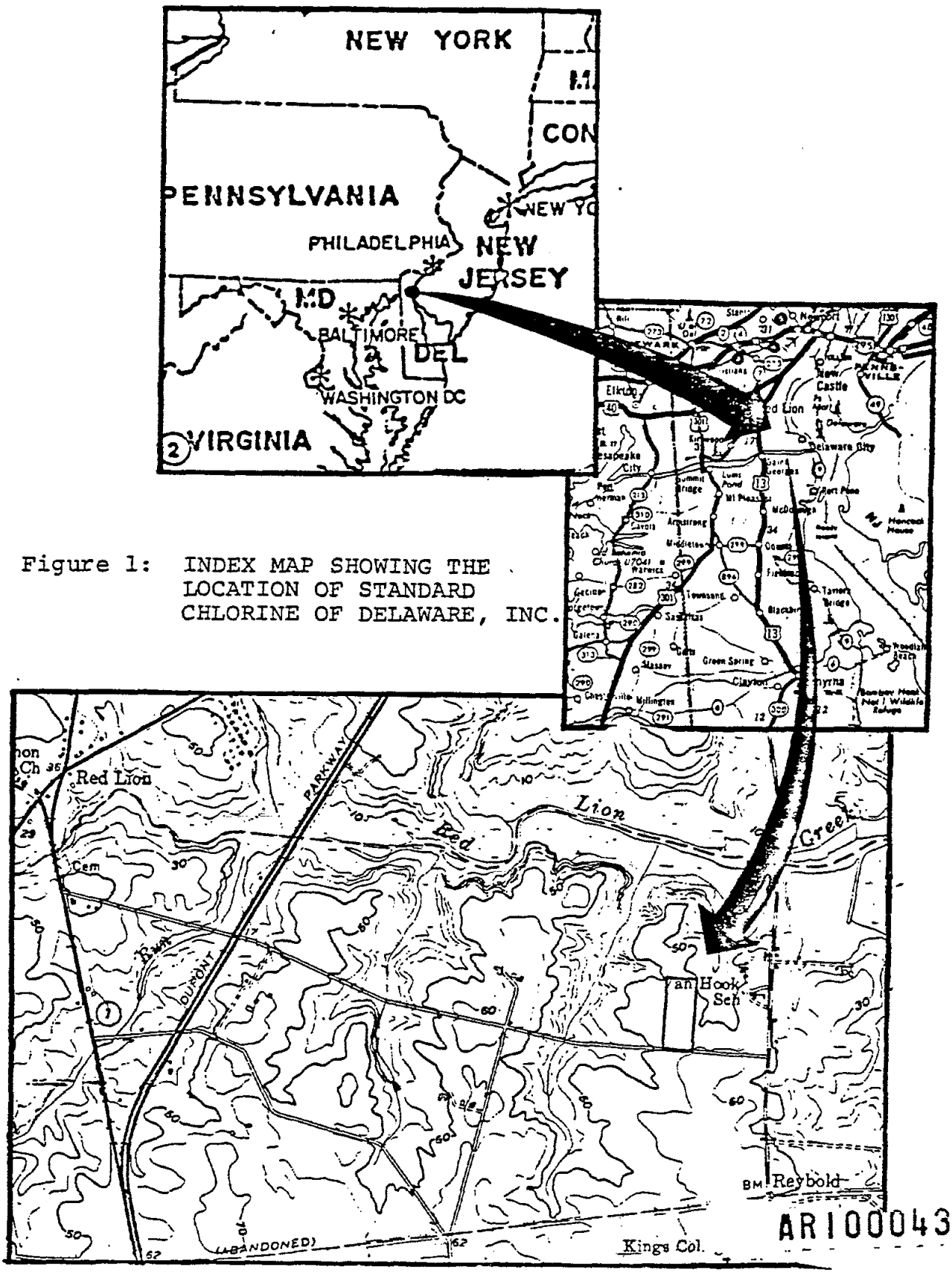


Figure 1: INDEX MAP SHOWING THE LOCATION OF STANDARD CHLORINE OF DELAWARE, INC.

RAWING (see page 4)

669 FT.

Standard Chlorine Plant Property

N

REST OF THE AREA OCCUPIED BY MANUFACTURING AND WASTE WATER TREATMENT FACILITIES

35 FT.

25 FT.

FUTURE STORAGE AREA FOR DRUMS CONTAINING WASTES READY FOR SHIPMENT FOR OFFSITE DISPOSAL

TANK CARS WITH TOTAL CAPACITY OF 45000 GAL. FOR STORAGE OF K085

R.R. TRACK

1140 FT.

THREE TANKS IN DIKED AREA WITH TOTAL CAPACITY OF 325,000 GAL. FOR STORAGE OF K085

103FT.

315A

56FT.

OFFICE 46 FT.

GATE

56 FT.

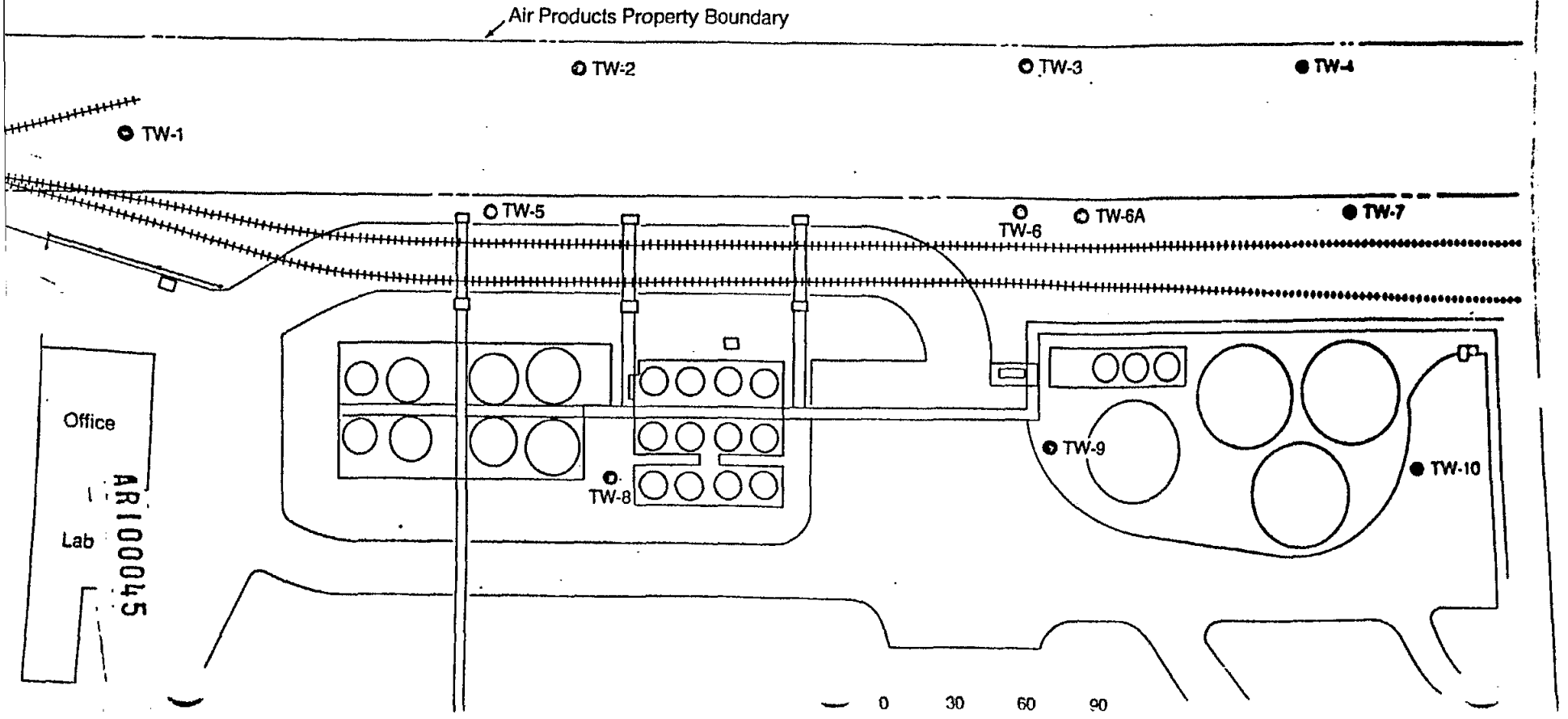
PARKING

AR100044

SCALE: 1 INCH = 125 FEET

WESTERN

Standard Chlorine
Monitor Well Locations



AR100045

APPENDIX A

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
EDWARD TATNALL BUILDING
P.O. BOX 1401
DOVER, DELAWARE 19901

TELEPHONE: (302) 736-4761

August 17, 1982

Mr. John Laager
Standard Chlorine of Delaware, Inc.
Governor Lea Road
P.O. Box 319
Delaware City, Delaware 19706

Dear Mr. Laager:

This letter documents our meeting on August 13, 1982, in which we discussed the report prepared by your consultant, Roy F. Weston, Inc., which was entitled "Hydrogeologic and Concept Engineering Evaluation of Remedial Actions for a Monochlorobenzene Spill." At the meeting we agreed that Standard Chlorine would undertake the following actions:

1) Initiate recovery of contaminants by pumping well TW-6A at approximately 40 gallons per minute and diverting the discharge through the water treatment plant. Although this letter serves as interim authorization for withdrawal of contaminated water, a water allocation permit must be obtained for continued recovery operations. An application for this permit is enclosed.

2) During contaminant recovery, operations of monitoring water levels and ground water quality in other monitoring wells will be performed. Ground water quality samples will be taken from the lower portion of the screened interval in each well and parameters to be tested for will include monochlorobenzene, benzene, orthodichlorobenzene, paradichlorobenzene, and 1,2,4-trichlorobenzene. By mid-September a proposal will be submitted delineating a plan to better define:

   a) the extent of the contamination in the Columbia Aquifer;

   b) the potential for vertical movement to the Potom and

   c) routinely monitor the contaminant recovery operation.

Also, the capacity of the solvent recovery unit and treatment plant will be studied to determine its ability to adequately

handle contaminant recovery well streams at several times the initial pumping rate.

The plan will address, not only contamination due to the monochlorobenzene spill, but also contamination caused by past activities. Enclosed you will find a copy of a memorandum by Frank Moorshead dated 5/10/74 and a page from DNREC's report entitled "Assessment of the Presence of Synthetic Organic Compounds in Delaware's Sources of Water Supply" (Aug. 1980). These materials provide evidence of a long-term widespread occurrence of benzene and its derivatives in the ground water near the Standard Chlorine plant.

We look forward to receiving your plan. If you have any questions, please contact Lisa Hamilton, who will continue to be our coordinator on this matter.

Sincerely,

Robert J. Touhey, P.E.
Manager

RJT/LAH/tj
Enclosures
pc: Christine Altomari, U.S. EPA
Michael A. Apgar
[redacted]

AR100048

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
EDWARD TATNALL BUILDING
P.O. BOX 1401
DOVER, DELAWARE 19901

TELEPHONE: (302) 736-4761

July 16, 1982

Mr. John Laager
Standard Chlorine of Delaware, Inc.
Governor Lea Road
P.O. Box 319
Delaware City, Delaware 19706

Dear Mr. Laager:

The Department has reviewed the report prepared by your consultant Roy F. Weston, Inc., entitled "Hydrogeologic and Concept Engineering Evaluation of Remedial Actions for a Monochlorobenzene Spill". We have the following comments:

- The report does not adequately define the extent of contamination. The Department finds no support in the report for the conclusion that contamination "is not migrating off-site but is, instead, confined dominantly within the plant area". Ground water flow in the water table aquifer is apparently to the northeast towards Red Lion Creek where MCB contamination has been detected. In addition, sample analyses of Diamond Shamrock's production well 16 (approximately 1600 feet east of Standard Chlorine) from samples taken January 6, 1982 found 38 ppb of monochlorobenzene and 6.7 ppb of benzene (results enclosed). The contamination of Diamond Shamrock's well may be a result of contaminant migration beyond Standard Chlorine's plant property;

- The report does not adequately address the potential for vertical movement of contaminants into the underlying Potomac Aquifer. The report lacks geologic maps and cross-sections making it difficult to visualize subsurface conditions beneath the site and around the site. Isopach maps constructed from the data in the report by DNREC staff indicate that the Merchantville Formation thins to the northeast beneath the site and - due to this trend and data from nearby areas - may be absent beneath a portion of the plant property. The potentially local absence of the Me[illegible] Formation in the area towards which contaminant mi[illegible] occurring in the water table aquifer (the northeas[illegible] in a direct connection between the Columbia and the underlying Potomac aquifers and provide an avenue for movement of contaminants to the major source of water supplies in the area.

- The data presented does not support the conclusion that all contaminants would be captured by pumping Well TW-6A. The extent of the zone of capture appears optimistic and may not include the entire area of contamination. Additional wells or greater recovery rates consistent with waste treatment capability may be required for contaminant recovery.

In addition, the chemical data the Department has indicates a contamination situation of greater magnitude and possibly of greater areal extent than that caused by the monochlorobenzene spill of September 16, 1982. Analyses from samples split with Weston on January 6, 1982, show that the ground water at the points sampled is contaminated with monochlorobenzene and also with benzene, orthodichlorobenzene, paradichlorobenzene, and 1,2,4-trichlorobenzene (see enclosed results). The fate of all these contaminants needs to be addressed.

We would like to meet with you and your consultants in the near future to discuss our comments and the report. Lisa Hamilton will call you in a few days to set up a meeting. If you have any questions, please contact our office.

Very truly yours,

Robert J. Touhey, P.E.
Manager

RJT/LAH/tj
Enclosures
pc: Lisa A. Hamilton

DEL. 302 834
NJ. 201 997
N.Y. 212 227
TWX 510 666
STD CLOR

STANDARD CHLORINE OF DELAWARE, INC.

GOVERNOR LEA ROAD • P.O BOX 319 • DELAWARE CITY, DELAWARE 19706

October 22, 1981

Mr. Robert Touhey, Manager
Department of Natural Resources & Environmental Control
Water Resources Section
P. O. Box 1401
Dover, De. 19901

Dear Mr. Touhey,

This is in response to your letter dated October 20, 1981, regarding the spill which occurred on September 16, 1981.

Initially, I would like to re-affirm our Company's position that we are committed to proceeding with the plan discussed at the meeting of October 13, 1981 between your staff, our consultant and Standard Chlorine. I think everyone will agree that the meeting was cordial and helpful to all concerned, and that the relationship between the parties was one of mutual cooperation. In the broader sense, as you know, it has been the position of Standard Chlorine ever since the spill occurred to cooperate with the State's representatives regarding cleanup. It is for this reason that we have complied with your staff's requests for data, that we have filed all reports required by State law in a timely manner with the Secretary, and that we have been in almost daily contact with your staff regarding actions being taken. As we have stated from the beginning, we are well aware of our responsibilities, and have every intention of carrying them forward in a prompt and speedy manner.

With this point in mind, it was somewhat distressing to note that your letter did not set out the full scope of cleanup activities which have been ongoing. In addition to the water monitoring, test borings, and analyses which you alluded to, we have been excavating up to 20 tons of earth per day from the drainage ditch in which the chemical passed, and storing the earth in a diked, concrete pad for disposal in an approved facility. This procedure was inspected by your staff. We have been removing and treating up to 25,000 gallons per day of surface and subsurface water through pumping in the ditch/creek area, permit applications for which were forwarded on October 7. This procedure also has been reviewed by representatives of the Department. It was our feeling that these activities could

and should continue during the time necessary for preparation, approval, and finalization of the more formal plans needed for cleanup. By these means, we have been able to recover substantial portions of the chemical spilled and contained. As regards the initial containment on the day the spill occurred, both the federal On-Scene Emergency Coordinator and the DNREC inspector stated to us that our containment efforts were as good as practicable under the circumstances.

Pertaining to the consultant's comment at the October 13 meeting regarding a well-driller, as I recall this was a cautionary statement based in part on the difficulty both we and your staff encountered in procuring a well-driller on short notice when the initial deep test bores were taken last September. In any event, you can be assured that every effort will be taken to insure that implementation of the plan will not be delayed once it is approved by your staff.

In closing, I would like to repeat that we are committed to a prompt and satisfactory resolution of this problem, and that you and your staff will continue to be appraised for review and comment. The statements of your staff's willingness to cooperate have been greatly appreciated. We will not hesitate to draw upon them as events proceed.

Sincerely yours,

STANDARD CHLORINE OF DELAWARE, INC

A. R. Sinibaldi
Vice President

ARS/dr

cc: Mr. Thomas P. Eichler
Mr. Kenneth R. Weiss
Mr. Jay N. Motwani
Mr. Michael A. Apgar
Ms. Lisa A. Hamilton
Mr. Ramesh Shah

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
EDWARD TATNALL BUILDING
P.O. BOX 1401
DOVER, DELAWARE 19901

TELEPHONE: (302) 736-4761

October 20, 1981

Mr. Anthony Sinibaldi
Vice President
Standard Chlorine of Delaware, Inc.
Governor Lea Road
P. O. Box 319
Delaware City, DE 19706

Dear Mr. Sinabaldi:

This letter is in reference to the spill of monochlorobenzene that occurred on the Standard Chlorine plant site on September 16, 1981, and subsequent events, including the recent meeting of October 13, 1981, between my staff, Standard Chlorine and its' consultant, Roy F. Weston.

It is my understanding, from the discussion that took place at the recent meeting, that you intend to pursue the following sequence of actions:

1. Develop a plan for a subsurface investigation to define the problem, subject to review by the Department prior to its implementation. The plan will address, at a minimum, the installation of monitoring wells at the site and their locations. The monitoring network should, at a minimum, allow a qualified geologist to:

   a. Assess the extent and quantity of contaminated soil in the unsaturated zone;

   b. Determine the amount and extent of ground water contamination if contamination has occurred;

   c. Determine the direction of ground water flow, the velocity of flow, and the influence of any contamination on existing ground water supplies;

   d. Define the geology of the area and attempt to address the potential for vertical migration c any contaminants into the semi-confined Potoma aquifer.

As indicated at the meeting by Standard Chlorine and its' consultant, such a plan is expected to be ready within seven (7) to ten (10) days from the date of the meeting.

2. Implementation of the subsurface investigation plan to adequately define the problem, by addressing the above-mentioned factors. Implementation of the plan, as indicated by Standard Chlorine and its' consultant at the meeting, is expected to take about thirty (30) days.

During the meeting, your consultant indicated that procurring the services of a skilled, licensed well-driller may be a cause for delay in the project. I find such statements unacceptable in view of the number of drillers available and the time you have to search for one. I trust that you are now taking steps to procure such services and that it will not be permitted to be a cause for delay.

This only serves to emphasize another disturbing aspect of this episode. My staff and I have on several occasions pointed out our concerns about the situation, and the necessity for speedy action. Thus far, the actions taken by the Company pertaining to the spill have concentrated on (1) monitoring surface water, (2) some preventive and corrective actions to alleviate the surface water contamination that occurred as a consequence of the spill, and (3) some preliminary work on subsurface investigation. The results from these preliminary subsurface investigations conducted by Standard Chlorine show an alarmingly high potential for ground water contamination. This is of very serious concern, considering the existing water supplies in the area and the highly favorable potential for future development of usable water resources in the area. Other factors such as poor biodegradability of monochlorobenzene, its' higher specific gravity in relationship to water, its' sparing solubility in water, and the potential for vertical migration into the deeper aquifer further accentuate these concerns.

In view of the above, I reiterate the importance of prompt action. You should make every effort to expedite the work by judiciously overlapping various phases of the investigative and subsequent corrective programs. For example, during the development of the initial plan, all efforts should be made to locate a driller to avoid any intermediate delays; and also, during the course of the subsurface investigative work, different types of applicable corrective actions should be addressed and relayed to the Department for preliminary review and comment.

My staff and I will cooperate with you in any way possible to expedite the program presently underway.

If you should have any questions, please contact the Solid Waste Management Branch at (302) 736-4781.

Very truly yours,

Robert J. Touhey, P.E.
Manager

RJT:JNM:jw

AR100054

cc: Mr. Thomas P. Eichler
Mr. Kenneth R. Weiss
Mr. Jay N. Motwani
Mr. Michael A. Apgar
Ms. Lisa A. Hamilton
Mr. Ramesh Shah

DEL. 302 834-4536
NJ. 201 997-1700
N.Y. 212 227-4443
TWX 510-666-1629
STD CLOR DELC

OCT 5 1981

STANDARD CHLORINE OF DELAWARE, INC.

GOVERNOR LEA ROAD • P.O BOX 319 • DELAWARE CITY, DELAWARE 19706

RECEIVED
OCT 13 1981
STATE OF DELAWARE
OFFICE OF SOLID WASTE

October 1, 1981

OFFICE OF DIRECTOR
OCT 7 1981

- For Your Information
- Please handle
- Prepare response Governor
- Prepare response Secretary
- Please see me
- Comments
- To Division Directors
- Other
- File
- Discard

Mr. Jack Wilson, Secretary
Department of Natural Resources
& Environmental Control
P. O. Box 1401
Edward Tatnall Building
Dover, De. 19901

Dear Secretary Wilson,

Pursuant to Delaware Regulations Governing the Management of Hazardous Waste Part 265.56 (j), this is to report on the chemical spill which was the subject of my letter to you dated September 22, 1981. This report is organized as provided by the regulations.

(1) Name, address, and telephone number of the owner or operator.

Standard Chlorine of Delaware, Inc.
Governor Lea Road
P. O. Box 319
Delaware City, De. 19706
(302) 834-4536

(2) Name, address, and telephone number of the facility.

Same as (1) above.

(3) Date, time and type of incident.

Chemical spill occurring after 1:30 A.M. on September 16, 1981.

(4) Name and quantity of material involved.

Monochlorobenzene, app. 5,100 gal.

(5) Extent of injuries.

None.

AR100055

(6) Assessment of actual or potential hazards to human health or the environment.

Spill occurred due to overfilling of a railroad tank car. The material which overflowed ran onto the railroad tracks into a drainage ditch located alongside the tracks. This ditch leaves our property and runs alongside Governor Lea Road and enters a wooded area owned by the Getty Oil Company, entering into Red Lion Creek.

Actual or potential hazards are entrance of the material into the soil and substrata, surface water, and air. Test borings of the affected soil areas have been taken since the spill and analyzed, with results being reported to the Department. Water samples in Red Lion Creek have been taken on a daily basis and reported to the Department.

(7) Estimated quantity and disposition of recovered material that resulted from the incident.

Although excavation is continuing, we estimate that app. 120 tons of earth has been removed. This earth is stored on a concrete, diked pad whose runoff is connected by pipe to our solvent recovery and wastewater treatment facility. We are in the process of arranging with a disposal company for disposition of the material in an approved landfill. Containment equipment (e.g. booms, absorbents) have been placed in metal drums for similar disposal. State DNREC officials have inspected the storage area.

Pumping of liquid in the ditch during cleanup also is continuing, with up to 20,000 gal/day being pumped into a tank truck and being treated through our waste treatment system. At the request of the DNREC, we have increased our monitoring of our wastewater to insure that these procedures do not result in violation of our NPDES permit.

I would like to express our continuing appreciation for the Department's cooperation in our efforts to deal with this matter.

Sincerely,

John C. Laager

John C. Laager
Corporate Counsel

JCL/dr

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF ENVIRONMENTAL CONTROL
WATER RESOURCES SECTION
EDWARD TATNALL BUILDING
P.O. BOX 1401
DOVER, DELAWARE 19901

TELEPHONE: (302) 736-4761

October 1, 1981

Mr. John Laager
Standard Chlorine of Delaware, Inc.
Governor Lea Road
Delaware City, Delaware 19706

Dear Mr. Laager:

This letter documents our telephone conversation of this afternoon concerning follow-up actions on the mono-chloro-benzene spill which occurred at the rail loading site of the Standard Chlorine plant north of Delaware City. As we discussed, data on chlorobenzene concentrations in the soil borings samples collected this week by the Walton Corporation show that the chlorobenzene penetrated to the 30 to 40 foot maximum depths sampled at several of the boring locations. This indicates that spill material has likely reached the water table - a matter of serious concern.

Accordingly, we agreed that you would retain a consultant with expertise in ground water hydrology who is registered as a geologist in the State of Delaware. I provided you verbally with the attached list of consultants who met these requirements. This consultant will review the spill information and meet with us to recommend and receive approval for a program to determine the occurrence, extent, and potential fate of chlorobenzene in the ground water at the Standard Chlorine site and to develop a program for action necessary to abate any problem. This meeting will be arranged as soon as possible, but no later than 10 days from today. As we arranged, you will call Lisa Hamilton of this office by Monday, October 5, 1981, to schedule or report on progress in scheduling this meeting.

We agreed that our request for the presentation of data generated to date including legible tables, maps and drawing be submitted to us at the time of the meeting. We also agreed that you could continue receovery of ground water - which Standard Chlorine has been performing at the rate of approximately 20,000 gallons per day from shallow well points in the drainage swale below the spill site (recovered water being tank-tracked to Standard Chlorine's wastewaster treatment plant) on an emergency basis. However, application for a permit for this withdrawal should be filed no later than our meeting. An application form for this purpose is enclosed

on location, methods of recovery, volume of water pumped, chlorobenzene concentrations and fate of the recovered contaminated water should be included with your progress report.

We look forward to your call on Monday.

Sincerely,

Michael A. Apgar
Supervisor
Water Supply Branch

MAA/psd
enclosures

cc: Robert J. Touhey
Lisa A. Hamilton

KCN

GEOHYDROLOGIC CONSULTING FIRMS *

1) Geraghty & Miller, Inc.
Consulting Ground-Water Geologists and Hydrologists
North Shore Atrium
6800 Jericho Turnpike
Syosset, New York 11791
(516) 921-6060

2) Leggette, Brashears & Graham, Inc.
Consulting Ground-Water Geologists
72 Danbury Road
Wilton, Connecticut 06897
(203) 762-1207

3) Roy F. Weston
Weston Way
West Chester, Pa. 19380
(215) 692-3030

4) Environmental Resources Management, Inc.
One South Church Street
West Chester, Pa. 19380
(215) 696-9110

5) Gilbert Associates, Inc.
P.O. Box 1498
Reading, Pa. 19603
(215) 775-2600

6) Moorshead-Siddiqui & Associates
Environmental Consultants
200 S. Talbot Street
St. Michaels, Maryland 21663
(301) 745-9160

7) Walter B. Satterthwaite Assoc., Inc.
11 N. Five Points Road
West Chester, Pa. 19380
(215) 692-5770

8) R.E. Wright Associates, Inc.
3805 Paxton Street
Harrisburg, Pa. 17111
(717) 561-1140

9) Dalfield Associates, Inc.
Consulting Geotechnical Engrs.
P.O. Box 505
Newark, Delaware 19711
(302) 738-0703

*This is not a complete list and does not reflect a recommendation by the State of Delaware.

APPLICATION FOR PERMIT TO

ALLOCATE THE WATERS

OF THE STATE OF DELAWARE

Date Received _____ Facility Construction Permit Numbers _____

Applicant's Name _____ _____

Mailing Address _____ _____

City and State _____ Zip: _____

Use of Water:

Public _____ Municipal _____ Industrial _____ Irrigation _____

Commercial _____ Agricultural _____

Location of Well/Stream Withdrawal

_____

_____

_____

_____

Quantity of water allocation requested:

Gallons per minute _____

Gallons per day _____

Gallons per month _____

Gallons per year _____

_____

Signature of Applicant

EPA

POTENTIAL HAZARDOUS WASTE SITE
FINAL STRATEGY DETERMINATION

REGION	SITE NUMBER
III	

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency; Site Tracking System; Hazardous Waste Enforcement Task Force *(EN-335)*; 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET	
Standard Chlorine of Delaware, Inc.	Governor Lea Road, P. O. Box 319	
C. CITY	**D. STATE**	**E. ZIP CODE**
Delaware City	DE	19706

II. FINAL DETERMINATION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	MARK 'X'	ACTION AGENCY: EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED					
B. REMEDIAL ACTION NEEDED, BUT NO RESOURCES AVAILABLE *(If yes, complete Section III.)*					
C. REMEDIAL ACTION *(If yes, complete Section IV.)*	X				X
D. ENFORCEMENT ACTION *(If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)*					

E. RATIONALE FOR FINAL STRATEGY DETERMINATION

Ground water contamination in the surficial (Columbia) aquifer has occurred. Potential hydrologic connection between Columbia and deeper Potomac aquifer may allow contaminants to travel to Potomac. More investigation is needed.

F. IF A CASE DEVELOPMENT PLAN HAS BEEN PREPARED, SPECIFY THE DATE PREPARED *(mo., day, & yr.)*	G. IF AN ENFORCEMENT CASE HAS BEEN FILED, SPECIFY THE DATE FILED *(mo., day, & yr.)*

H. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*
Lisa A. Hamilton	(302) 736-5740	9/9/82

III. REMEDIAL ACTIONS TO BE TAKEN WHEN RESOURCES BECOME AVAILABLE

List all remedial actions, such as excavation, removal, etc. to be taken as soon as resources become available. See instructions for a list of Key Words for each of the actions to be used in the spaces below. Provide an estimate of the approximate cost of the remedy.

A. REMEDIAL ACTION	B. ESTIMATED COST	C. REMARKS
	$	
	$	
	$	
	$	
	$	AR100061
	$	
	$	
	$	
D. TOTAL ESTIMATED COST	$	

Continue On Reverse

Continued From Front

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY ACTI . *(On Site and Off-Site)*: List all emergency .ions taken or planned to bring the site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of Key Words *for each of* the actions to be used in the spaces below.

1. ACTION	2. ACTION START DATE (mo,day,&yr)	3. ACTION END DATE (mo,day,&yr)	4. ACTION AGENCY (EPA, State, Private Party)	5. COST	6. SPECIFY 311 OR OTHER ACTION. INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
Blocking runoff from spill.	9/16/81	?	Private	$?	
Hydrogeologic study	10/13/81	continu-ing	Private	$	
				$	
				$	
				$	
				$	

B. LONG TERM STRATEGY *(On Site and Off-Site)*: List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. ACTION START DATE (mo,day,&yr)	3. ACTION END DATE (mo,day,&yr)	4. ACTION AGENCY (EPA, State Private Party)	5. COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED.
Recovering contaminat-ed ground water	8/13/82	continu-ing	Private	$?	
				$	
				$	
				$	
				$	
				$	

C. MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL MAN-HOURS FOR REMEDIAL ACTIVITIES	3. TOTAL COST FOR REMEDIAL ACTIVITIES
a. EPA		$
b. STATE		$
c. PRIVATE PARTIES	?	$?
d. OTHER *(specify)*:		$